



ULDB

Wallops Flight Facility

Systems Engineering

**David Stuchlik
NASA/GSFC/WFF**

**David.W.Stuchlik@gsfc.nasa.gov
757-824-1115**



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- **Development of Project Requirements**
 - **Identify Users and collect needs and wants**
 - » **NASA HQ & GSFC Management**
 - Policy & Directives
 - » **Scientists & Demo 2000 science teams**
 - Polidan Study
 - Document Requirements for Beyond Demo 2000 Flt.
 - Identify Applicable Technologies
 - Identify Technical Challenges of the ULDB Program
 - Provide Input to WFF ULDB Development/Demo
 - Provide Info to Possible Non-Balloon Users
 - PICs conducted with all six Demo 2000 science teams
 - » **Mission and Operations Users**
 - Input from conventional and LDB operations
 - Flight Monitor and Control Requirements



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- **Establish Top Level Product Breakdown Structure**
 - What Subsystems are needed
- **Establish “Design-to” Requirements**
 - Functional Requirements
 - » What must the subsystems do
 - Performance Requirements
 - » How well must the subsystems do it
 - » Some performance values TBD pending trade-offs
 - Environmental Requirements
- **Baseline ULDB “Design-to” Requirements Document (URD)**
 - Revision 1.0 released 24 October 1997



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- **ULDB Phase A study team**
 - 12 Civil Service personnel assigned 12 September
 - » 25 personnel now assigned to project
 - Kickoff Meeting 17 September
 - Tasked with Identification of Alternative Design Concepts
 - » Brainstorming Sessions, Market Surveys, Satellite Technology
 - » LDB SIP demonstration 7-8 October
- **Team input to MDR**
 - Initial Feasibility and Risk assessment
 - Leading Design Concepts Identified
- **Next Steps**
 - Trade Studies - Integration of Results
 - Optimum Subsystems Identified at SDR



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- **Risk Identification & Mitigation**
 - **Identification**
 - » Areas where new or unproven technology is necessary to meet requirements
 - **Mitigation**
 - » Subsystem Managers working with Government and Industry Experts
 - Lessons learned and recommendations
 - » Parallel development of Alternatives
 - Technology Development Efforts
 - » Early flight testing of higher risk concepts